MONITORING THE NEW ZEALAND COASTAL POLICY STATEMENT: A Preliminary Assessment

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October 1994

Information Paper No 51

Lincoln Environmental
PO Box 84
Lincoln University
CANTERBURY

ISSN 0112-0875
ISBN 1-86931-092-6

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TABLE OF CONTENTS

BRIEF

Specify a method which will enable the Department of Conservation to monitor the effectiveness of policies contained in the New Zealand Coastal Policy Statement.

ACKNOWLEDGEMENTS

This study was funded by the Department of Conservation. The authors would like to thank:

- David Gregory, Canterbury Regional Council; and
- Chris Kerr, Centre for Mountain Studies, Lincoln University

for comments made on the draft report.

1 INTRODUCTION

The Resource Management Act 1991 (RMA) promises a radically improved system for the assessment of the environmental consequences of development, especially at the regional and local level. However, this promise will only be realised if the implementation is effective. Determining the nature and degree of effectiveness is critical to planning, both long-term and short-term, hence the need for a process of evaluating and monitoring.

The RMA provides for a New Zealand Coastal Policy Statement (NZCPS) with a purpose of stating policies *"... in order to achieve the purpose of this Act in relation to the coastal environment of New Zealand (S56) ... prepared and recommended by the Minister of Conservation (S57)."*

As such, a New Zealand Coastal Policy Statement provides a framework to guide regional and territorial authorities in the management of the coastal environment. It is the role of a NZCPS to establish the policies upon which local authorities, both regional and territorial, can base decisions concerning the management of the coastal environment.

One of the functions of the Minister of Conservation under the RMA Section 28(d) is:

> *"The monitoring of the effect and implementation of New Zealand coastal policy statements and permits granted by the Minister of Conservation."*

Section 58 (g) provides that a New Zealand Coastal Policy Statement may contain procedures and methods which will enable an ongoing review of the policies specified by the statement and monitor their effectiveness in terms of the purpose of the policy statement. To this end, Policy 7.1.2 (b) of the NZCPS states:

> *"The Minister of Conservation shall monitor the effectiveness of the ... Policy ... by working with regional councils and with all other interested bodies willing to co-operate to establish a national state of the coastal environment monitoring programme."*

While the RMA does not contain a specific review period for the NZCPS, Policy 7.1.1 indicates that the statement will be reviewed no later than nine years after it has been gazetted. There is, therefore, an understanding that a New Zealand Coastal Policy Statement is a dynamic component of the management of natural coastal resources in New Zealand.

The NZCPS is not able to be monitored directly due to the general and conceptual nature of the policies. There is a need for the Department of Conservation (DOC), as the management agency responsible for a coastal policy statement, to be pro-active by providing a framework for monitoring the coastal environment by regional and territorial authorities. This must be carried out in a manner which provides the Department with comparable data, both in terms of regional consistency and in terms of the monitoring needs of the policies. For this reason, DOC has requested a report detailing a method by which the Department can monitor the implementation and effectiveness of these policies.

The brief for this project raises a significant issue in terms of resource management. How can policies designed to guide the implementation of 'sustainable development' be evaluated regarding their effectiveness? The generalised and conceptual nature of these policies does not provide a basis for determining their quantitative or qualitative effectiveness. We contend, however, that the effectiveness of the generalised policies can be evaluated by analysing the results of comparable monitoring programmes undertaken by local authorities.

This report presents an evaluation method based on the RMA definition of environment (ie, social, cultural, economic and ecological factors), an explanation of each step with examples, and recommendations for implementing the method.

2 MONITORING

Monitoring can take place at two levels:

- Monitoring the state of the environment; and
- Monitoring decision-making processes, ie, the effectiveness of policies and achievement of objectives (Ward, 1990).

2.1 Monitoring the State of the Environment

Environmental systems, including the coastal environment, are not static; rather they are involved in a range of short, medium and long terms variations - some natural and others imposed by human activities. However, it is not possible to measure all environmental variables in the coastal environment. We need to select or develop key indicators to tell us about the state of the coastal environment without the need to peruse all the environmental variables that may have been measured (Ward, 1990). Effective monitoring requires the selection of appropriate indicators of environmental change (eg, Hedley et al, 1994), and methods for measuring these effects spatially and temporally. Indicators of the state of the coastal environment and management practices have been suggested by Ward (1993).

2.2 Monitoring Decision-Making Processes

Monitoring the effectiveness of policies and achievement of objectives requires a commitment of administrative resources. If this commitment cannot be met then the relevant objectives and policies need to be reconsidered.

Local authorities have a duty to gather information, monitor and keep records under Section 35 of the RMA. Section 35(2b) requires that every local authority monitors the suitability and effectiveness of any policy statement or plan in its region or district.

Regional policy statements must be consistent with the NZCPS (RMA S62(2)), as is the case with a regional plan or regional coastal plan (S67(2a)) and a district plan (S75(2a)).

One of the functions of the Minister of Conservation is to monitor the effect and implementation of the New Zealand coastal policy statements and permits (S28(d)). This can be achieved by examining the regional coastal policy statements for compliance with the NZCPS and seeking from regional councils statements of compliance with the terms and conditions of coastal permits. Section 28A states that any regional council may be requested to supply information to the Minister regarding the monitoring of coastal permits or its regional coastal plan.

Information from monitoring regional and district policy statements and plans will form the basis of an ongoing review of the NZCPS by DOC. It will also be used to assess the suitability and effectiveness of regional and district plans and other methods intended to achieve integrated management of New Zealand's natural and physical coastal resources.

> *"In order to assist in the establishment of a national state of the coastal environment monitoring programme, local authority policy statements and plans should identify the procedures and methods which the local authority intends to use to gather information and monitor the state of their coastal environment."* (NZCPS Policy 7.1.3)

Monitoring the effectiveness of policies is not a case of absolutes; rather it is a matter of degrees. Measuring the degree of effectiveness requires an evaluation in quantitative or qualitative terms.

In this report, we have constructed a framework which will facilitate the setting of measurable objectives and monitoring programmes which reflect the intentions of the policies specified in the New Zealand Coastal Policy Statement.

3 TASK

To develop a rigorous framework which will enable local authorities to monitor in terms of the requirements of the NZCPS, ensuring the provision of comparable data for the Department of Conservation related to the implementation and effectiveness of the policy statement.

4 METHODOLOGY

4.1 Framework

The following framework is based on identifying the key components of each policy. Local authorities are required to identify these components at the regional and/or local level. The framework is intended to enable local authorities to provide the Department of Conservation with comparable data, based on a consistent monitoring methodology.

A flow diagram (Figure 1) illustrates the monitoring framework. The terms used in each step of the framework are defined below:

Resource Management Act (RMA) -- A guiding framework within which policies, objectives and monitoring methods are developed.

New Zealand Coastal Policy Statement (NZCPS) -- A policy statement intended to ensure that the purpose of the RMA is met, defining specific policies related to the preservation, conservation and use of the coastal environment.

Regional Policy Statements -- Policy statements at the regional level that include methods to enable integrated management of the natural and physical resources of the region within the purpose of the RMA.

Regional Plans -- Plans to assist the regional council, and the Minister of Conservation in the case of regional coastal plans, to achieve the purpose of the RMA.

District Plans -- Plans to assist territorial authorities to carry out their functions under the RMA.

Key Components -- Specific policies categorised in terms of social, cultural, economic and ecological components (NB: these are NOT discrete categories).

Quantitative and Qualitative Terms -- Measurable terms, categorised in relation to their quantitative or qualitative features, derived from the key components.

Objectives -- Measurable objectives derived from the key components through a consultative process.

Monitoring Processes -- Processes of monitoring or assessing the set objectives. These processes will determine the degree of achievement of the objectives and the degree to which the policies are being effectively implemented, and, therefore, the effectiveness of the policies contained in the NZCPS.

Feedback Loop -- The results of the monitoring programmes contribute to the ongoing development of policies and actions consistent with the intentions of the RMA.

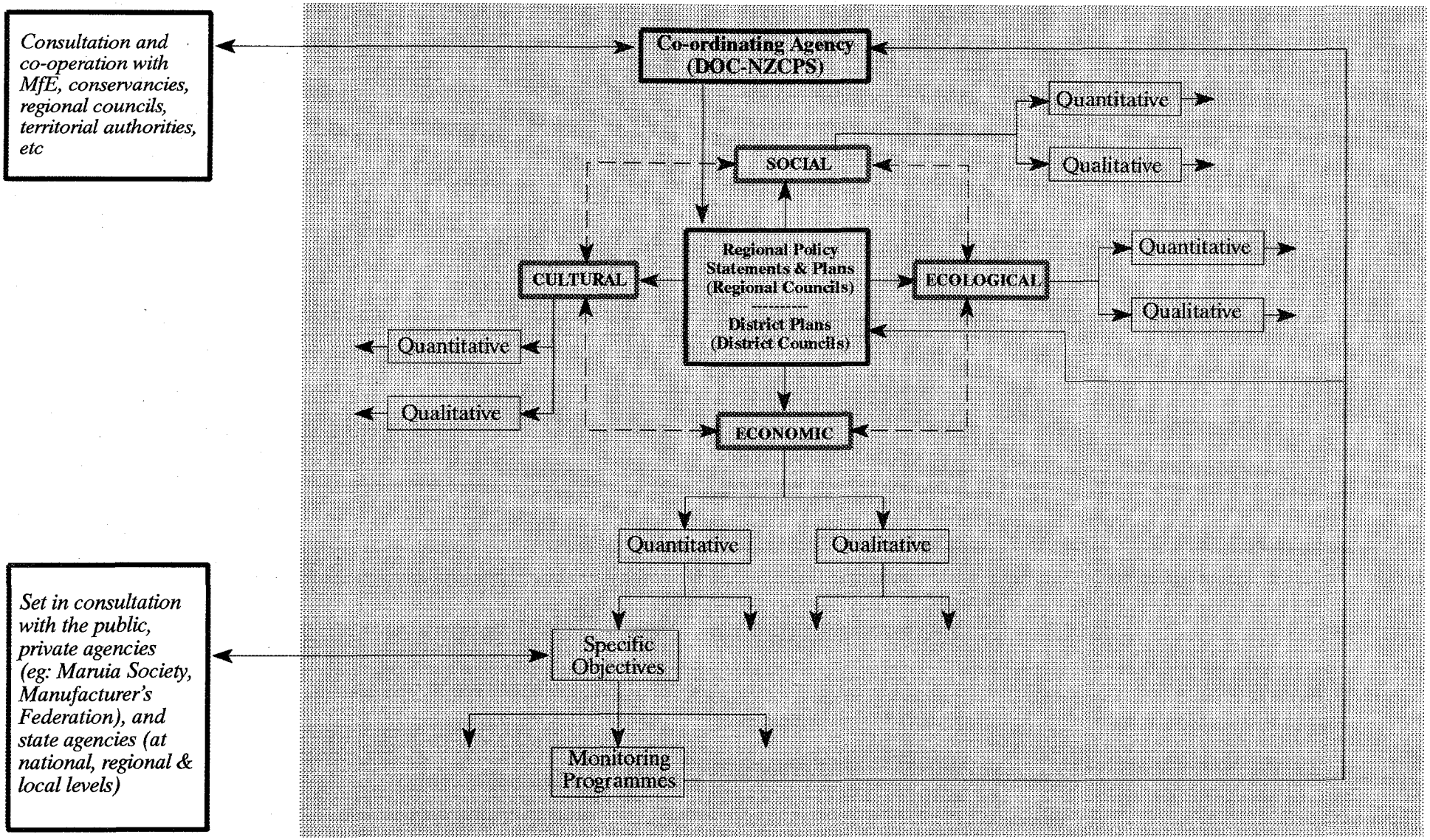

Figure 1: Monitoring Framework

4.2 Steps Involved in Monitoring the NZCPS

It is important to note that the policies in each chapter of the NZCPS are related so that overlap may occur between key components, objectives and methods of assessment in some cases. These overlaps must be identified in the formulation of key components, objectives and methods of assessment in order to ensure consistency and avoid duplication of resources.

4.2.1 Identify Key Components of a Policy

Key components must be related to fundamental aspects of the policy and be consistent with the intention of the policy.

Policy 3.1.1 example:

"Use of the coast by the public should not be allowed to have significant adverse effects on amenity values, nor on the safety of the public nor on the enjoyment of the coast by the public."

The key components are:

Public use [of the coast has] *no significant adverse effects* [on]:

- *amenity values*
- *public safety*
- *public enjoyment of the coast*

Public use of the coast ranges from visits for private recreation or for a recreational event through to uses involving structures such as boatsheds, jetties, retaining walls and sewage outfalls.

Large numbers of users at low frequency, such as for an annual event, may have little impact while at high frequency even a small numbers of users may affect amenity values.

Changes in the numbers of users of a section of the coast will reflect positive or negative attitudes towards enjoyment. For instance, certain types of recreational use (eg, jet skis) may prevent the enjoyment of other uses such as quiet enjoyment of the coastal environment. It has been recognised that crowd tolerant users will displace crowd adverse users (Manning, 1986).

Any or all of these issues may need to be identified before the development of a monitoring programme and analysing the results.

Policy 1.1.3 example:

"It is a national priority to protect the following features, which in themselves or in combination, are essential or important elements of the natural character of the coastal environment:

a) landscapes, seascapes and landforms, including:
   i. significant representative examples of each landform which provide the variety in each region;
   ii. visually or scientifically significant geological features;
   iii. the collective characteristics which give the coastal environment its natural character including wild and scenic areas.

b) characteristics of special spiritual, historical or cultural significance to Maori identified in accordance with tikanga maori.

c) significant places or areas of historic or cultural significance."

The key components are:

Protection of the natural character of the coastal environment [specifically]:

- *landscapes, seascapes and landforms.*
- *characteristics of special spiritual, historical or cultural significance to Maori identified in accordance with tikanga maori.*
- *significant places or areas of historic or cultural significance.*

Critical to the effective monitoring of this policy is the establishment of a national database for the coastal environment. This database will enable regional and local monitoring programmes to establish the nature and degree of protection afforded to these features of the coastal environment.

It is also important to note the overlap between this policy, particularly Section (b), and Policies 2.1.1, 2.1.2 and 2.1.3 related to tangata whenua. The implementation and monitoring of these policies must be complementary and consistent.

4.2.2 Identify Key Components that are Relevant at a Regional or Local Level

This task will be undertaken by local authorities (regional councils or territorial authorities), based on regional or local policy statements and plans. There is a need for DOC to provide assistance to local authorities in order that the interpretations of key components are consistent. This may be done through the production of criteria to guide local authorities in identifying relevant regional and local components.

Policy 3.1.1 example:

a) List forms of public use that are applicable at the regional level, eg:
   - structures
   - recreational activities
   - cultural harvest
   - etc

   Structures may cause hazards to public safety and may prevent certain activities from taking place at a particular site.

b) List relevant aspects of amenity values, public safety and public enjoyment at the regional level:
   - amenity values

     These include historic and cultural values, scenic beauty, and degree of pollution. They should be determined in consultation with public and private agencies.

   - public safety

     This would include safety on land and in the water as affected by the natural coastal environment and by the presence of structures.

   - public enjoyment

     This includes enjoyment of the coast for a variety of uses both active and passive.

Policy 1.1.3 example:

a) Identify areas of the coastal environment which fulfill the criteria specified in the policy, eg:
   - significant representative examples of each landform
   - visually or scientifically significant geological features
   - etc

   These areas will be identified regionally and locally in consultation with government agencies, community groups and the general public.

b) Identify characteristics of special spiritual, historical or cultural significance to Maori, eg:
   - areas of mahinga kai
   - areas of wahi tapu
   - etc

   These areas will be identified in consultation with tangata whenua, while acknowledging the provision of Policy 2.1.1: *"This includes the right of tangata whenua to chose not to identify all or any of them."*

c) Identify places or areas of historic or cultural significance, eg:
   - Marsden Point
   - Waitangi
   - Kawau Island
   - etc

   These areas will be identified through consultation with local and regional communities, and historical analyses of the settlement of the coastal environment.

These components are not discrete and special attention must be paid to the components contained in other policies.

4.2.3 Categorise the Relevant Key Components into Social, Cultural, Economic and Ecological Attributes

Using the RMA definition of environment, the relevant key components are categorised on the basis of their social, cultural, economic and/or ecological attributes.

These categories are NOT discrete and various components may relate to more than one category.

Policy 3.1.1 example:

The effects of structures on amenity values, public safety and enjoyment have social, cultural, economic and ecological attributes. The effects of structures, such as boat sheds, wharves, sea walls, sewage outfalls, on public safety have social, economic and ecological attributes. For example, the effects of a sewage outfall on the coast may have detrimental effects on cultural and visual values, water pollution, marine organisms and public health. The discharge of sewage to the sea has economic aspects. Other structures such as wharves may be a safety hazard.

Policy 1.1.3 example:

The characteristics of the coastal environment may be defined in terms of social, cultural, economic and ecological attributes. For example, the Manakau Harbour has cultural attributes related to its traditional importance for mahinga kai. In addition, it has social attributes as a recreational resource, and economic attributes as a commercial port.

4.2.4 Identify Measurable Components in Quantitative or Qualitative Terms

In each of the categories identified in Section 4.2.3, identify components which are measurable in quantitative and/or qualitative terms.

Policy 3.1.1 example:

The social effects of public use of the coast on amenity values, public safety and public enjoyment may be evaluated through the use of physical, chemical or biological quantitative methods, or through the use of qualitative interviews or participant observation. However, the economic effects are evaluated using quantitative market and non-market valuation methods.

Table 1 gives an example for Policy 3.1.1.

Table 1: Quantitative/qualitative assessment of the attributes of structures on amenity values, public safety and public enjoyment

	Social	Cultural	Economic	Ecological
Amenity Values	Qualitative/ quantitative	Qualitative	Quantitative	Quantitative/ qualitative
Public Safety	Qualitative/ quantitative	-	Quantitative	-
Public Enjoyment	Qualitative/ quantitative	Quantitative/ qualitative	Quantitative	Quantitative/ qualitative

Policy 1.1.3 example:

The nature and degree of protection given to characteristics of the coastal environment may be evaluated in quantitative or qualitative terms. For example, a database may identify the number and types of protected areas, eg, marine reserves. Qualitative interviews with local community members may provide an understanding of local perceptions relating to the effectiveness of the protection afforded to different areas.

Table 2 gives an example for Policy 1.1.3.

Table 2: Quantitative/qualitative assessment of the characteristics of the coastal environment

	Social	Cultural	Economic	Ecological
Landscapes, seascapes, landforms	Qualitative/ qualitative	Qualitative	Quantitative	Quantitative/ qualitative
Maori spiritual, historical or cultural significance	-	Qualitative	-	-
Historical or cultural significance	Qualitative/ quantitative	Qualitative	Quantitative	Quantitative/ qualitative

4.2.5 Formulate Specific Objectives

For the quantitative and qualitative components, specific objectives are formulated on a national, regional, local or community level as appropriate. This process is undertaken in consultation with appropriate interested parties and individuals. The objectives must, however, be consistent with the NZCPS.

Policy 3.1.1 example:

An objective might be:

- To minimise the effects of public use on the social and ecological aspects of amenity values, public safety and equipment.

These effects could be measured in quantitative or qualitative terms.

Policy 1.1.3 (b) example:

An objective might be:

- To prevent discharges to water that might affect its mauri (life essence).

This MUST be monitored in both qualitative and quantitative terms, recognising the metaphysical relationship between Maori and the natural environment.

4.2.6 Specify an Appropriate Assessment Process

For each of the quantitative and qualitative objectives an appropriate assessment or evaluation process needs to be specified.

Qualitative and quantitative assessment procedures are listed in Table 3.

Policy 3.1.1 example:

An assessment process might be to monitor the effects of particular recreational activities on key components of the coastal ecosystem such as on sand dune vegetation, shellfish beds etc. Biological indicators could be used (see Ward, 1993).

Policy 1.1.3 example:

Quantitative monitoring programmes employing biological, physical or chemical indicators may be used to measure the water 'quality'. However, the metaphysical relationship between Maori and the natural environment necessitates the use of qualitative methods, such as consultation or hui.

4.2.7 Feedback Loop

In order for the NZCPS to be a living document, the results of monitoring programmes must be used as feedback, actively influencing the development of the NZCPS and regional and district policy statements and plans.

Table 3: Methods of assessment

	Quantitative	Qualitative
Social	• Social science statistical analysis • Quantitative surveys • Quasi-experimental models	• Unstructured interviews • NUDIST (non-numerical data and information sorting technique) • Participant observation
Cultural	• Social science statistical analysis • Quantitative surveys • Quasi-experimental	• Hui • Consultation
Economic	• Mathematical modelling • Cost/benefit analysis • Market/non-market valuation	• Deductive argument • Participant observation • Experiential evaluation
Ecological	• Biological indicators • Chemical indicators • Physical indicators • Photography	• Unstructured interviews • NUDIST • Participant observation

Each of these assessment methods is briefly described below.

4.3 Assessment Methods

4.3.1 Social Science Statistical Analysis

Statistical analysis is frequently applied to the results of quantitative surveys. It contributes to the formulation of policies, the content of policies, the translation of policies into operational strategies and the execution and monitoring of those operational strategies.

4.3.2 Quantitative Surveys

Quantitative surveys, also known as statistical surveys, include both census and sample surveys (eg, sampling species numbers or condition). Surveys result from quantifiable information needs and require setting specific objectives based on an understanding of the survey subject. Despite significant potential biases and assumptions, qualitative surveys are the predominant research method for resource management (Henry, 1990). Surveys can yield information for predicting, planning, profit and control, gathering descriptive data and a variety of political programmes. Statistical packages and computer programmes are

widely available to aid the analysis of data generated by quantitative surveys, eg, Statistical Package for the Social Sciences (SPSS) (Bryman and Cramer, 1990).

4.3.3 Quasi-Experimental Models

These involve the derivation of experimental models in which certain independent variables are manipulated and their effect on one or more dependent variables is determined. The levels of these independent variables, or groups of units, are assigned at random to the experimental units of the study. While quasi-experimental models can be relatively efficient, particularly in terms of time, they tend to over-simplify reality making generalisations of the results difficult, if not impossible. Three basic phases are involved in this approach: the planning phase, the design phase and the analysis phase (Hicks, 1982).

4.3.4 Unstructured and Semi-Structured Interviews

Unstructured and semi-structured interviews are considered to be the appropriate technique for uncovering the perceptions of selected interviewees. The use of these methods is intended *"... to elicit from the interviewee rich, detailed materials that can be used in qualitative analysis ..."* (Lofland and Lofland, 1984: 12), enabling the retention of a focus upon the topic without leading the process, and sufficient 'depth' to allow respondents to convey differences in their perceptions of reality. An interview guide (Lofland and Lofland, 1984) provides a tool to implement the methods. Common themes are discovered and coded by examining the transcripts of the interviews. Sections with the same codes are collated and analyzed through the development of propositions, which are then interpreted.

4.3.5 NUDIST (Non-Numerical Data and Information Sorting Technique)

An analytical tool applied to qualitative research data, which uses word and phrase association to identify significant concepts in the transcript of unstructured or semi-structured interviews.

4.3.6 Participant Observation/Experiential Evaluation

This is a qualitative research tool involving experience of a situation as a basis for understanding the nature of reality from the perspective of those individuals in that situation.

4.3.7 Hui

Hui is a general term in Maori for any kind of meeting. However, in the context of this report, Hui is taken to mean a formalised meeting on a marae in which all participants may speak without fear of contradiction or interruption. This is an appropriate method for ensuring consultation with tangata whenua. It is a forum where tangata whenua may express their views and may also be used to elicit issues and/or scope solutions through the use of Maori protocol.

4.3.8 Consultation

A two-way process of information exchange, designed to include affected individuals and groups in the decision-making process. The objective is to determine the beliefs, feelings and attitudes of these individuals and groups, providing a basis for citizen-participation in the decision-making process.

Effective consultation with tangata whenua is dependent on issues and circumstances in a particular region or district (Ministry for the Environment, 1991). The Waitangi Tribunal has stated that consultation is probably the most important way to ensure that Maori have an input to the decision-making process (Waitangi Tribunal Report, 1991).

4.3.9 Mathematical Modelling

The use of refutable mathematical propositions, consisting of predictions about the responses of decision variables to changes in constraints. These propositions assume an unchanging behavioural hypotheses, supported or refuted with quantitative data (Silberberg, 1990).

4.3.10 Cost/Benefit Analysis and Market/Non-Market Valuation

The object of valuation methods is to enable a comparison of relative values. This is only possible if the commodities being compared are done so in terms of a common denominator. Classical economics is able to determine the value of resources viewed as commodities, such as timber and hydroelectricity, through observing market transactions. However, for amenity or public good values, including aesthetic and cultural values, markets do not exist, and their value must be established in other ways. The past thirty years have seen an increasing emphasis on the development of methods for placing value on non-market commodities and services. Randall (1984) has identified two broad categories of methods for quantifying the economic value of non-market goods: the contingent valuation approach and the expenditure function approach. These have also been described as direct and indirect techniques, respectively, based upon the way in which the questions are constructed (Sharp and Cullen, 1991). The function of economic techniques is to provide a measure of the value of non-marketable commodities for use in cost-benefit analysis. The function of non-market valuation is, therefore, to value commodities on a comparable basis. However, it is not essential that this comparable tool is price. Both market and non-market valuation techniques can prove valuable tools in the repertoire of resource managers, by providing comparative value information. This is particularly useful in cases where managers are required to balance competing demands for scarce resources.

4.3.11 Biological Indicators/Chemical Indicators/Physical Indicators

Environmental indicators include physical, chemical and biological attributes which reflect changes in the state of the environment (Ward, 1990). They may be directly measurable such as pH and concentrations of pollutants, or they may be computed from measured variables such as water quality indices. Hellawell (1986) considers indicators within the framework of a biological-science spectrum. At one extreme is the use of living organisms or indicator species which provide convenient monitors of the effects of the introduction of contaminants, such as human-induced wastes, including their synergistic effects. At the other end of the spectrum, biochemical reactions may be used in tests for more specific classes of pollutant.

4.3.12 Photography

Comparison of photographs over specified time periods can assist in evaluating the nature and degree of change associated with human activities. Photo-monitoring has the potential to contribute to environmental monitoring programmes without the need for extractive sampling.

5 CONCLUSIONS AND RECOMMENDATIONS

The Minister of Conservation has a duty to monitor the effect and implementation of New Zealand coastal policy statements and coastal permits granted by the Minister. In addition, a regional council can be requested by the Minister to supply information relating to monitoring of coastal permits or the regional coastal plan. The Minister can therefore achieve the function to monitor the New Zealand Coastal Policy Statement by examining regional coastal policy statements for compliance with the NZCPS and seeking from regional councils statements of compliance with terms and conditions of coastal permits.

In order to monitor the effectiveness of the policies contained in the NZCPS, two factors are essential:

- a commitment by central government, particularly the Minister of Conservation and the Department of Conservation, to provide an adequate framework and resources for monitoring programmes undertaken by local authorities; and

- a similar commitment and allocation of adequate resources by regional councils and territorial authorities to ensure the implementation of appropriate monitoring programmes.

To provide the Minister of Conservation with consistent and comparable data on the coastal environment, regional councils and territorial authorities need to use a framework such as suggested in this report to guide the development of regional plans and policy statements, district plans and monitoring programmes.

Local authorities need to identify specific objectives related to the management of coastal resources before undertaking monitoring programmes; objectives must be consistent with the key components in the NZCPS..

This report sets out a framework for assessing the policies contained in the NZCPS, policies which cover social, cultural, economic and ecological aspects of the coastal environment. However, it is only intended to provide a preliminary assessment of a complex issue: monitoring the effectiveness of the NZCPS.

Further research is required to specify the type of information required for regional and local monitoring programmes, although some illustrations have been given in this report. The information may include criteria to guide local authorities in identifying relevant regional and local components. The policies in the NZCPS must be worked through for specific locations so that monitoring methods can be recommended to specific regions.

It is recommended that DOC undertake further research to validate this approach, possibly by the use of detailed case studies involving three scenarios with each of three policies.

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